

WHAT IS CLAIMED IS:

1. A stacked semiconductor device, comprising:

5 a substrate having a conductor pattern thereon and the conductor pattern having a plurality of pads;

 a first die mounted on the substrate and electrically connected to the pads of the conductor pattern;

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 a first insulating layer mounted on the substrate to cover at least a portion of the first die;

 a mask, which has a top and an annular sidewall, mounted on the substrate to
15 cover the first insulating layer and the first die, and

 a second die mounted on the top of the mask and electrically connected to the pads of the connector pattern.

20 2. The stacked semiconductor device as defined in claim 1, further comprising a second insulating layer mounted on the substrate to cover the second die.

 3. The stacked semiconductor device as defined in claim 1, wherein the first die has a radio frequency integral circuit.

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4. The stacked semiconductor device as defined in claim 1, wherein in the mask is filled with the first insulating layer.

5. The stacked semiconductor device as defined in claim 1, further comprising an adhesive layer in between the second die and the top of the mask.

6. The stacked semiconductor device as defined in claim 1, further comprising a third die covered by the mask.

7. The stacked semiconductor device as defined in claim 6, wherein the third die is mounted on the substrate beside the first die.

8. The stacked semiconductor device as defined in claim 6, wherein the third die is stacked on the first die.

9. The stacked semiconductor device as defined in claim 1, wherein the mask further has a connector portion on the sidewall to be electrically connected to the pads of the conductor pattern.

10. The stacked semiconductor device as defined in claim 1, wherein a size of the second die is greater than a size of the first die.

11. The stacked semiconductor device as defined in claim 1, further comprising wires electrically connecting the first die to the pads of the conductor pattern and the first insulating layer covers both of the first die and the wires.

12. The stacked semiconductor device as defined in claim 1, further comprising wires electrically connecting the second die to the pads of the conductor pattern and the second insulating layer covers both of the first die and the wires.